



## Биология и экология гидробионтов

УДК 504.064.36:574

# PHYTOPLANKTON-BASED BIOMONITORING IN ASSESSING THE POLLUTION LEVEL OF A LENTIC FRESHWATER BODY IN HOOGHLY DISTRICT, WEST BENGAL, INDIA

© 2020 S. Pore<sup>1</sup>, S. Ghosh<sup>2</sup>, J. P. Keshri<sup>3</sup>, S. S. Barinova<sup>4\*</sup>

<sup>1</sup>*Bandel Vidyamandir High School, India*

<sup>2</sup>*Mahadevananda Mahavidyalaya of the West Bengal State University, India*

<sup>3</sup>*CAS, The University of Burdwan, India*

<sup>4</sup>*Institute of Evolution, University of Haifa, Haifa 3498838, Israel*

\*E-mail: [sophia@evo.haifa.ac.il](mailto:sophia@evo.haifa.ac.il)

**Abstract.** Phytoplankton is the base of every aquatic food web. During the assessment of the trophic status of the investigated lentic water body (within Lake City Housing Complex, Mankundu, Hooghly, West Bengal, India), phytoplankton composition and its temporal variation are proved to be the most important. In this study, 30 phytoplankton taxa have been recorded in various arrangements throughout the season. The maximum number of phytoplankton species with the highest Shannon–Weaver diversity index value represented the pre-monsoon season, whereas the least number of phytoplankton taxa and the lowest diversity indicators characterized the post-monsoon season. The development of algal bloom by one specific taxon, *Botryococcus braunii*, in the post-monsoon season indicates the change in the trophic status of this particular water body. As a criterion for the beginning of the algal bloom, an exceedance of 1 mg/L in nitrate concentration can be considered. The phytoplankton composition, values of various diversity indices, its density and species distribution pattern, and selected environmental parameters have been investigated, as well as the results of the analysis of rank abundance curves, which allowed for evaluation of the ecological status of this lentic water body. This study describes the change or shift in the ecosystem of the investigated water body towards eutrophication and establishes its pollution level as moderate to light.

**Keywords:** phytoplankton, diversity, biomonitoring, climatic seasons, West Bengal, India